

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application. An identifier indicating the status of each claim is provided.

Listing of Claims

1 – 10. (Canceled)

11. (Currently Amended) A turbo decoder operative to use a soft output Viterbi algorithm, said turbo decoder comprising:

a plurality of decoding units; and

~~at least two effective decoding units operative to use a soft output Viterbi algorithm; and~~

a number of normalization units each located at an output side of a respective decoding unit,

wherein only a subset of the plurality of decoding units has a normalization unit associated therewith at its output side.

12. (Currently Amended) The turbo decoder according to claim 11, wherein ~~the a~~ decoding unit not having a respective normalization unit associated therewith at its output side is provided with data representative of a normalized output from the normalization unit of a preceding decoding unit of the subset.

13. (Currently Amended) The turbo decoder according to claim 11, wherein the plurality of decoding units include a first decoding unit and a ~~turbo decoder includes first and second decoding unit units~~, in which only the first decoding unit has a respective normalization unit associated therewith at its output side.

14. (Currently Amended) A mobile communications device, ~~characterized in that it comprises~~ comprising a turbo decoder according to claim 11.

15. (Currently Amended) A turbo decoding method operative to use a soft output Viterbi algorithm, said turbo decoding method comprising the steps of:

using a plurality of ~~effective decoding units operative to use a soft output Viterbi algorithm~~; and

normalizing data obtained from use of each of the plurality of decoding units with a respective normalization factor,

wherein the data obtained from use of only a subset of the plurality of decoding units are normalized with a normalization factor variable during operation and the data obtained from use of the other one or ones of the plurality of decoding units ~~unit(s)~~ are normalized with a time constant normalization factor.

16. (Previously Presented) The turbo decoding method according to claim 15, wherein the time constant normalization factor is equal to one.

17. (Currently Amended) The turbo decoding method to claim 15, wherein only the one or ones of the plurality of decoding units ~~unit(s)~~ provided with data representative of a normalized output from the respective normalization unit or units ~~unit(s)~~ of a preceding decoding unit or units ~~unit(s)~~ of the subset ~~is/are~~ are normalized with the time constant normalization factor.

18. (Currently Amended) The turbo decoding method according to claim 15, wherein the plurality of decoding units include a first decoding unit and a ~~first and~~ second decoding unit ~~units are used~~, and

wherein the data obtained from use of the first decoding unit is normalized with the normalization factor variable during operation and the data obtained from use of the second decoding unit is normalized with the time constant normalization factor.

19. (Currently Amended) The turbo decoding method according to claim 15, wherein the normalization factor or factors are calculated on the basis of means and variance of extrinsic information produced by ~~the~~ an associated decoding unit or units.

20. (Currently Amended) The turbo decoding method according to claim 15, wherein the plurality of decoding units are arranged in a parallel manner to enable the method to be ~~is~~ performed as a parallel concatenated scheme.

21. (New) A turbo decoder operative to use a soft output Viterbi algorithm, said turbo decoder comprising:

a decoding unit; and

one or more normalization units, each located at an output side of the decoding unit,

wherein said decoding unit is used a plurality of times, each of said plurality of times generating an output, and

wherein only a subset of said outputs is normalized with one of said normalization units.

22. (New) The turbo decoder according to claim 21, wherein a decoding unit not having a respective normalization unit associated therewith at its output side is provided with data representative of a normalized output from the normalization unit of a preceding decoding unit of the subset.

23. (New) The turbo decoder according to claim 21, wherein the plurality of generated outputs from said decoding unit includes a first output and a second output, in which only the first output has a respective normalization unit associated therewith at its output side.

24. (New) A mobile communications device comprising a turbo decoder according to claim 21.

25. (New) A turbo decoding method operative to use a soft output Viterbi algorithm, said turbo decoding method comprising the steps of:

using a decoding unit; and
normalizing data obtained from a normalization unit with a respective
normalization factor variable,
wherein said decoding unit is used a plurality of times, each of said plurality of
times generating an output, and
wherein only a subset of said outputs is normalized with one of said
normalization units and a remaining subset of outputs is normalized with a time constant
normalization factor.

26. (New) The turbo decoding method according to claim 25, wherein the time
constant normalization factor is equal to one.

27. (New) The turbo decoding method to claim 25, wherein only the outputs
normalized with one of said normalization units are normalized with the time constant
normalization factor.

28. (New) The turbo decoding method according to claim 25,
wherein the plurality of generated outputs from said decoding unit includes a first
output and a second output, and
wherein said first output is normalized with said normalization factor variable
during operation and said second output is normalized with said time constant normalization
factor.

29. (New) The turbo decoding method according to claim 25,
wherein said normalization factor variable is calculated on the basis of means
and variance of extrinsic information produced by an associated decoding unit or units.

30. (New) The turbo decoding method according to claim 25,
wherein said decoding unit is enabled so that the method is performed as a
parallel concatenated scheme.